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PRELIMINARY NOTES ON SOME AFRICAN ODONATA.

BY PHILIP P. CALVERT.

The Odonata collected at various places in West Africa by the United States Eclipse Expedition to the Congo, and by Dr. W. L. Abbott in Zanzibar and the Kilimanjaro region, were sent to me for study from the United States National Museum, by Dr. C. V. Riley. Two papers containing the results of that study have already been placed in his hands, but as some time must elapse before their publication, I have drawn up the present abstract of the chief results—with Dr. Riley's permission—for these TRANSACTIONS. The papers referred to contain complete lists, descriptions and figures.

The two species of *Orthetrum* here described as new may possibly be among the species already described by Burmeister or Rambur, but from their descriptions I could not satisfactorily identify them. As false determinations are even more troublesome than new synonyms, it seemed better to risk the latter chance.

Diplax dilatata n. sp.—Brownish yellow; frons with a rather wide band in front of the eyes and vertex, mentum, sutures of the thorax with stripes, a broader, short stripe in front of the spiracle and an antehumeral stripe, the greater part of the pectus, the feet except the inferior surface of the femora, abdominal segment 1 at base, 2 and 3 a median dorsal spot, a spot each side of dorsum near apex of 3-8,—black or dark brown. Wings hyaline, hindwings light yellow at base, pterostigma brownish yellow, membranule white; front wings: 9-10 antecubitals, 10-12 postcubitals, four then three posttriangular rows. Hind wings: 6-7 antecubitals, 10-12 postcubitals, three then two posttriangular rows increasing.

♂.—Abdomen compressed at base, narrowing to base of 5, thence widening and thickening to 7 (where it is wider than at base), thence narrowing to apex, which is a little wider than base of 5. Hamule bifid, internal branch ending in an acute hook, external branch thicker, apex obtuse; superior appendages as long as 8.

♀.—Last seven abdominal segments wanting.

Abdomen (incl. app.) ♂ 26.5—31.5 mm. Hind wing ♂ 33—34.5 mm., ♀ 34.5 mm. Width of base of fifth ab. seg. ♂ 1.5, width of 7, 3—4 mm.

Four males, one female, St. Helena (U. S. E. E.).

Trithemis ferrugaria Ramb., Neur. p. 82.

♀.—Vulvar lamina produced a little beyond the apex of 10, its

margin entire, apex rounded. The length of the lamina easily separates *ferrugaria* from *erythræa* Brullé ♀.

Seven males, two females, Kilimanjaro, Dr. Abbott.

ORTHETRUM (Newm.) Karsch, Ent. Nach. xvii, p. 59.

Orthetrum truncatum n. sp. ♂.—Head and thoracic dorsum mostly luteous, a black antehumeral stripe; sides of thorax reddish brown, an oblique pale yellow stripe, partly margined with black, behind each of the two lateral sutures. Abdomen of shape of *brachiale* Beauv., pruinose. Genitalia of 2 moderately prominent. Anterior lamina slightly more prominent than hamule or genital lobe, its apex slightly emarginate. Hamule bifid, branches widely divergent; internal branch, when viewed from the side, thicker than the lamina, its apex almost truncate, somewhat hooked on its outer side; external branch much shorter, lying against the ventral margin of 2, its apex rounded. Genital lobe either not quite or about as prominent as the internal hamular branch. Wings hyaline, somewhat smoky, hind wings with a small yellowish cloud at base. Pterostigma bright ochre yellow, membranule cinereous, whitish at base. Front wings: 11—14 antecubitals, 8—11 postcubitals, three posttriangular rows. Hind wings: 9—10 antecubitals, 9—12 postcubitals, two posttriangular rows increasing, sectors of triangle united at origin. Female unknown to me.

Abdomen (incl. app.) 27—30 mm. Hind wing 29—32.5 mm.

Six males, Kilimanjaro, Dr. Abbott.

Orthetrum Abbotti n. sp.—Wings hyaline, extreme base fulvous. Pterostigma yellow, membranule white. Front wings: 12—13 antecubitals, 9—10 postcubitals, three posttriangular rows. Hind wings: 10 antecubitals, 9—10 postcubitals, sectors of triangle separated at origin.

♂.—Face pale green, lips yellowish. Thorax pruinose, a band just behind spiracle and sides behind second lateral suture greenish yellow. Abdomen of *brachiale* group, pruinose. Genitalia of 2 prominent. Anterior lamina projecting farther ventrally than any other piece, swollen anteriorly, the swollen part covered with minute denticles, apex emarginate; hamule with apex bifid, internal branch rather slender; external branch shorter, twice broader, apex truncated. Genital lobe moderate, not as prominent as internal hamular branch.

♀.—Luteous. Abdominal carinæ and sutures, lateral margins of 4—7, dorsum posteriorly, mostly black; sides of 8 dilated about as much as in *brunnea* Fonsc. Vulvar lamina not projecting farther than apex of 8, margin straight, entire.

Abdomen (incl. app.) ♂ 25 mm., ♀ 24 mm. Hind wing ♂ ♀ 28 mm.

One male, one female, Kilimanjaro, Dr. Abbott.

Orthetrum brachiale Beauv.? Ins. Afr. Amer., p. 171.

The specimens which I have identified as of this species may be recognized at all ages by the following structural characters:

♂.—Genitalia of 2 prominent. Anterior lamina much as in *brunnea* Fonsc., with sides rounded to the apex, which is truncated and slightly emarginate; hamule with the apex bifid, branches parallel, of equal length, but obliquely

placed; internal branch rather slender, apex slightly hooked and directed outwards; external branch twice as thick, apex rounded. Genital lobe broad, apex rounded. Internal hamular branch projecting slightly farther than anterior lamina or genital lobe.

♀.—Sides of 8th abdominal segment dilated (as much as in *Lib. quadrupla* Say). Vulvar lamina not produced beyond apex of 8, margin entire, but bent towards the abdomen at the middle.

Sixteen males, two females, Zanzibar and Kilimanjaro, Dr. Abbott. One male, Cape Town, U. S. E. E.

Orthetrum caffrum Burm.—*Lib. caffra* Burm. Handb. Ent. ii, p. 856, is undoubtedly an *Orthetrum*.

One male, Congo, one female, Freetown, Sierra Leone, U. S. E. E. They were seen by Dr. Hagen, who kindly identified them for me. Both are imperfect.

Orthetrum Wrightii Selys.

Libellula Wrightii Selys, Ann. Soc. Ent. Belg. xii, p. 96, 1869.

♂.—Genitalia of 2 rather prominent, black. Anterior lamina longer than any other piece, its apex rounded, barely notched; viewed from the side it is quite slender. Hamule with apex bifid, branches approximately of equal length when viewed from the side; internal (anterior) branch slender, with a very acute apex directed outwards; external (posterior) branch much broader, somewhat lamellar, apex broad, truncate, angles rounded. Genital lobe rather broad, rounded, projecting equally with the internal hamular branch.

♀.—Sides of 8th abdominal segment dilated. Vulvar lamina not prolonged beyond the apex of 8, its margin entire, not bent in the middle as in *brachiale*.

One male, one female, Seychelles, Dr. W. L. Abbott.

Schizonyx luctifera Selys.

Zygonyx ? luctifera Selys, Ann. Soc. Ent. Belg. xii, p. 96, 1869.

Schizonyx luctifera Karsch, Berl. Ent. Zeit. xxxiii, p. 281, 1890; Selys, Ann. Soc. Ent. Belg. xxxv, p. cexxvi, 1891.

♂.—Genitalia of 2 not prominent. Anterior lamina rather flat, a small tubercle and a depression each side, apex rounded, entire. Hamule projecting farthest, its apex bifid so that the anterior branch forms a distinct, rounded, and somewhat slender hook; posterior (external) branch not developed. Genital lobe rather narrow, not projecting as far as lamina or hamule. Wings hyaline, reticulation blackish. Pterostigma dark brown, trapezoidal. *Sectors of the arculus distinctly stalked*, no hypertrigonals, one median cross-vein, discoidal triangles free, that of the front wings placed a short distance (1.5 mm.) beyond the apex of that of hind wings, nodal sector distinctly waved beyond the middle. Front wings with 10—11 antecubitals, the last one not continuous, 9—10 postcubitals, internal triangle of one or two cells hardly distinct from adjacent cells, two or three posttriangular cells, then two rows. Hind wings with 6—7 antecubitals, 11—12 postcubitals, no internal triangle, two or three posttriangular rows, sectors of the triangle united at their origin. Posterior lobe of prothorax very small, its hind margin entire, rounded.

Abdomen (incl. app.) 33 mm. Hind wing 37 mm.

Two males, Seychelles, Dr. W. L. Abbott.

By the position of the discoidal triangle of the front wings with respect to that of the hind wings and the trapezoidal pterostigma, *Schizonyx* is allied to the group of *Tramea*, and most nearly approaches the tropical American genus *Miathyria* Kirby, but the latter has no small prominence on the hind margin of the eyes, the nodal sector is not waved beyond the middle, the front wings have 7-9 antecubitals, 5-8 postcubitals, the hind wings have 4-5 antecubitals, 6-9 postcubitals, and are proportionately broader at base than in *Schizonyx*.

Anax Rutherfordi McLach., Ent. Mo. Mag. xx, p. 128.

A single female (hitherto undescribed) was collected in the Kilimanjaro region by Dr. Abbott. Its colors agree with those of the male as far as described. Female, abdomen (incl. app.) 59 mm., hind wing 59 mm.

Aeschna Rileyi n. sp. ♀.—Brown. Frons darker above with a yellow half-ring enclosing a nearly round, dark brown spot which reaches to the vertex; a yellow line in front of the eyes becomes confluent with this half-ring, which latter is slightly interrupted anteriorly so that the enclosed brown spot becomes confluent with the brown of the frons at this point. Thorax with a short antehumeral line, a fine humeral line, two broad, oblique bands on the sides, yellow. Feet black, femora reddish brown. Abdomen not constricted after the base, 3-7 with a median, dorsal triangular spot; 2, 3, 6-9 with a lateral spot, yellow. Wings hyaline. Pterostigma yellowish brown. Membranule white, apical third grayish. Two hypertrigonals. Discoidal triangle of four cells, two on the inner side. Front wings: 16-17 antecubitals, 11-12 postcubitals. Hind wings: 10 antecubitals, 12-13 postcubitals. Length 64 mm.

Abdomen (incl. app.) 48 mm. Hind wing 47 mm. Appendages 5 mm. Pterostigma 4 mm.

One female, Kilimanjaro, Dr. Abbott. Male unknown to me.

Disparoneura Abbotti n. sp. ♂.—Allied to *subnodalis* Selys and belonging to the same division of *Disparoneura* in Baron de Selys' Revision of 1886. Differs from *subnodalis* by having the lower sector of the triangle ending near the middle of the vein *one cell after* that which terminates the space under the quadrilateral, upper sector of the triangle ending on the hind margin at about the sixth cell after the quadrilateral, an uninterrupted yellow band running across the front of the head from eye to eye, the two juxta-humeral spots of *subnodalis* absent.

Abdomen (incl. app.) 41 mm. Hind wing 25 mm.

Two males, Kilimanjaro, Dr. Abbott. Female unknown to me.